

**UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE**

ECOLOGICAL SITE DESCRIPTION

ECOLOGICAL SITE CHARACTERISTICS

Site Type: Rangeland

Site ID: R070XA018NM

Site Name: Sandstone Savannah

Precipitation or Climate Zone: 14 to 18 inches

Phase:

PHYSIOGRAPHIC FEATURES

Narrative:

This site occurs on nearly level to moderately sloping side slopes of foothills and on top of hills and mesas. Typically, the Savannah site grades away from the edges of steep slopes of physiographic breaks. Slopes range from 3 to 25 percent, averaging 10 percent. Direction of slope varies and is only significant on the steeper north facing slopes. Elevation ranges from 5,500 to 7,500 feet above sea level. This site has the potential to produce both forage for grazing and limited wood products.

Land Form:

1. Hillside

2. Mesa

3.

Aspect:

1. North facing steeper slopes

2.

3.

	Minimum	Maximum
Elevation (feet)	5,500	7,500
Slope (percent)	3	25
Water Table Depth (inches)	N/A	N/A
Flooding:	Minimum	Maximum
Frequency	N/A	N/A
Duration	N/A	N/A
Ponding:	Minimum	Maximum
Depth (inches)	N/A	N/A
Frequency	N/A	N/A
Duration	N/A	N/A

Runoff Class:

Negligible to medium.

CLIMATIC FEATURES

Narrative:

The climate of this area can be classified as “semi-arid continental”.

Precipitation averages 14 to 18 inches. Seventy seven percent of the year’s moisture normally falls during the period of May through October. Practically all of it is brought by brief afternoon and evening thunderstorms. July and August are normally the wettest months of the year. Early spring precipitation in May benefits the cool-season plants. Winter precipitation supplies 24 percent of the year’s moisture. Much of the winter precipitation falls as snow.

Air temperatures vary from a monthly mean of 20 degrees F in January to 69 degrees F in July. Daily high temperatures average in the 80’s and low 90’s during the summer. Winter low temperatures fall below the freezing mark much of the time from November through March with a minimum temperature approaching 25 degrees F below zero.

Dates of the last killing frost may vary from May 9th through May 17th, and the first killing frost from September 27th through October 8th. The frost-free season ranges from 141 days to 153 days from early May to early October.

Nearby mountains to the west intercept much of the precipitation from the Pacific storms coming through this area during the winter. About 70 percent of the 14 to 18 inches of annual precipitation falls in the form of rainfall during the frost-free season. About 30 percent of the annual precipitation benefits cool-season plants. Relative humidity is moderately low. The sun shines approximately 75 percent of the time possible for the year. Strong winds during the spring cause rapid drying of the soil surface.

Climate data was obtained from <http://www.wrcc.sage.dri.edu/summary/climsmnm.html> web site using 50% probability for freeze-free and frost-free seasons using 28.5 degrees F and 32.5 degrees F respectively.

	Minimum	Maximum
Frost-free period (days):	132	149
Freeze-free period (days):	153	171
Mean annual precipitation (inches):	14	18

Monthly moisture (inches) and temperature (°F) distribution:

	Precip. Min.	Precip. Max.	Temp. Min.	Temp. Max.
January	.27	.40	10.4	48.2
February	.26	.43	14.1	52.7
March	.56	.78	20.4	59.6
April	.85	1.20	28.7	67.9
May	1.68	2.49	38.3	76.4
June	1.77	2.21	46.3	85.7
July	2.53	3.43	50.9	88.8
August	2.95	3.57	50.6	86.6
September	1.56	2.02	42.9	80.7
October	1.02	1.20	31.4	71.4
November	.44	.59	19.9	57.6
December	.25	.51	12.3	50.5

Climate Stations:

				Period			
Station ID	<u>293706</u>	Location	<u>Grenville, NM</u>	From:	<u>01/01/41</u>	To:	<u>12/31/01</u>
Station ID	<u>294856</u>	Location	<u>Las Vegas FAA Airport, NM</u>	From:	<u>01/01/41</u>	To:	<u>12/31/01</u>
Station ID	<u>295490</u>	Location	<u>Maxwell, NM</u>	From:	<u>01/01//14</u>	To:	<u>12/31/01</u>
Station ID	<u>297280</u>	Location	<u>Raton KRTN Radio, NM</u>	From:	<u>12/01/78</u>	To:	<u>12/31/01</u>
Station ID	<u>298501</u>	Location	<u>Springer, NM</u>	From:	<u>01/01/14</u>	To:	<u>12/31/01</u>
Station ID	<u>299330</u>	Location	<u>Valmora, NM</u>	From:	<u>03/01/17</u>	To:	<u>12/31/01</u>

INFLUENCING WATER FEATURES**Narrative:**

This site is not influenced by water from a wetland or stream.

Wetland description:

System	Subsystem	Class
N/A		

If Riverine Wetland System enter Rosgen Stream Type:

N/A

REPRESENTATIVE SOIL FEATURES

Narrative:

These are well drained, shallow soils on sandstone bedrock. The surface texture is fine sandy loam, loam, and silt loam or channery, flaggy or stony types of these textures. The texture of the subsurface layers is flaggy or stony loam to clay loam. Sandstone bedrock is at depths of less than 20 inches. Permeability is moderate. The available water-holding capacity is low. Effective rooting depth is 6 to 20 inches. Air-water relationship is favorable for plant growth. Rock fragments make up 5 to 25 percent of the surface.

Parent Material Kind: Residuum

Parent Material Origin: Sandstone-unspecified

Surface Texture:

1. Fine sandy loam
2. Loam
3. Silt loam

Surface Texture Modifier:

1. Stony
2. Channery
3. Flaggy

Subsurface Texture Group: Loamy

Surface Fragments ≤3" (% Cover): 15 to 35

Surface Fragments >3" (% Cover): 15 to 35

Subsurface Fragments ≤3" (%Volume): 15 to 35

Subsurface Fragments ≥3" (%Volume): 15 to 35

	Minimum	Maximum
Drainage Class:	<u>Well</u>	<u>Well</u>
Permeability Class:	<u>Moderately slow</u>	<u>Moderate</u>
Depth (inches):	<u>8</u>	<u>20</u>
Electrical Conductivity (mmhos/cm):	<u>0.00</u>	<u>2.00</u>
Sodium Absorption Ratio:	<u>N/A</u>	<u>N/A</u>
Soil Reaction (1:1 Water):	<u>7.9</u>	<u>8.4</u>
Soil Reaction (0.1M CaCl₂):	<u>N/A</u>	<u>N/A</u>
Available Water Capacity (inches):	<u>3</u>	<u>6</u>
Calcium Carbonate Equivalent (percent):	<u>N/A</u>	<u>N/A</u>

PLANT COMMUNITIES

Ecological Dynamics of the Site:

Plant Communities and Transitional Pathways (diagram)

Plant Community Name: Historic Climax Plant Community

Plant Community Sequence Number: 1 **Narrative Label:** HCPC

Plant Community Narrative: Historic Climax Plant Community

This site is an open stand of pinyon pine and/or juniper with grass understory. The understory grasses are characterized by both warm/cool-season mid-grasses with scattered shrubs throughout the site. Half-shrubs and forbs are a minor part of the plant community. The open stand of pinyon and juniper at one time may have been maintained by natural fire. The overstory tree canopy cover ranges from 10 to 25 percent. The site commonly occurs in association with pinyon /juniper woodland.

Canopy Cover:

Trees 10 – 20 %

Shrubs and half shrubs 2 – 5 %

Ground Cover (Average Percent of Surface Area).

Grasses & Forbs 15 – 20

Bare ground 20 – 30

Surface gravel 0

Surface cobble and stone 30 – 40

Litter (percent) 6 – 10

Litter (average depth in cm.) 2

Plant Community Annual Production (by plant type): _____

Plant Type	Annual Production (lbs/ac)		
	Low	RV	High
Grass/Grasslike	300	600	900
Forb	32	64	96
Tree/Shrub/Vine	100	200	300
Lichen			
Moss			
Microbiotic Crusts			
Total	400	800	1,200

Plant Community Composition and Group Annual Production:

Plant Type - Grass/Grasslike

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
1	SCSC	Little Bluestem	120 – 160	120 – 160
2	BOCU	Sideoats Grama	120 – 160	120 – 160
3	BOGR2 BOHI2	Blue Grama Hairy Grama	120 – 160	120 – 160
4	HECO26 HENE5	Needleandthread New Mexico Feathergrass	40 – 80	40 – 80
5	ANGE	Big Bluestem	24 – 40	24 – 40
6	SONU2	Indiangrass	24 – 40	24 – 40
7	ELEL5	Bottlebrush Squirreltail	24 – 40	24 – 40
8	PIFI NAVI4	Pinyon Ricegrass Green Needlegrass	16 – 40	16 – 40
9	PASM	Western Wheatgrass	24 – 40	24 – 40
10	LYPH	Wolftail	24 – 40	24 – 40
11	SPCR	Sand Dropseed	24 – 40	24 – 40
12	MUMO MUCU3	Mountain Muhly Plains Muhly	24 – 40	24 – 40
13	2GRAM	Other Grasses	24 – 40	24 – 40

Plant Type - Forb

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
14	ERIOG	Wild Buckwheat	24 – 40	24 – 40
15	SPCO	Scarlet Globemallow	24 – 40	24 – 40
16	ASTRA	Astragalus spp.	24 – 40	24 – 40
17	2FORB	Other Forbs	24 – 40	24 – 40

Plant Type – Tree/Shrub/Vine

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
18	PIED JUNIP	Pinyon Pine Juniper spp.	80 – 160	80 – 160
19	RHTR	Skunkbush Sumac	24 – 40	24 – 40
20	ARFR4	Fringed Sagewort	24 – 40	24 – 40
21	ARBI3	Bigelow Sagebrush	24 – 40	24 – 40
22	QUERC	Oak spp.	24 – 40	24 – 40
23	KRLA2	Winterfat	24 – 40	24 – 40
24	CEMOP	Hairy Mountainmahogany	24 – 40	24 – 40
25	2SD	Other Shrubs	24 – 40	24 – 40

Plant Type - Lichen

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production

Plant Type - Moss

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production

Plant Type - Microbiotic Crusts

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production

Other grasses that could appear on this site include: spike muhly, silver bluestem, Metcalf muhly, ring muhly, mat muhly, threeawn spp., alkali sacaton, pine dropseed, junegrass, dryland sedges, Indian ricegrass and galleta.

Other shrubs include: rabbitbrush, fourwing saltbush, sand sagebrush, threadleaf groundsel, broom snakeweed, yucca spp., sacahuista and ponderosa pine.

Other forbs include: penstemon spp., loco spp., redstem milkvetch, Indian paintbrush, fetid marigold, sand verbena, wooly Indianwheat and tansy mustard.

Plant Growth Curves

Growth Curve ID NM3718

Growth Curve Name: HCPC

Growth Curve Description: Open stand of pinyon/juniper with a mixed mid-grass understory.

Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
0	0	3	5	10	10	25	30	12	5	0	0

ECOLOGICAL SITE INTERPRETATIONS

Animal Community:

Habitat for Wildlife:

This site provides habitat which supports a resident animal community that is characterized by mule deer, bobcat, coyote, blacktailed jackrabbit, desert cottontail, Stephen's woodrat, rock squirrel, pinyon mouse, prairie falcon, red-tailed hawk, plain titmouse, scrubjay, blacktailed rattlesnake, and red spotted toad. The woody vegetation provides nesting opportunities for many bird species.

Hydrology Functions:

The runoff curve numbers are determined by field investigations using hydrologic cover conditions and hydrologic soil groups.

Hydrologic Interpretations

Soil Series	Hydrologic Group
Sombordoro	D
Tuloso	D
Bernal	D

Recreational Uses:

This site offers fair to good potential for hiking, horseback riding, nature observation, photography, camping and picnicking. Hunting for mule deer or mourning dove can be fair, while pronghorn antelope hunting is poor.

Wood Products:

This site has potential for woody products, which is limited to fuelwood and fence material. However, if the site has deteriorated, as much as 6 to 10 cords of wood may be harvested. Harvesting in either case should be selective and done by hand cutting. Tree spacing of D + 15 should be recommended.

Other Products:**Grazing:**

This site can be grazed any season of the year by all classes and kinds of livestock. Because of the rock outcrop, a younger class of livestock utilizes this site the best. Browsing animals may be favored because of the site's potential to produce shrubs and forbs. Continuous grazing during the growing season will cause the more desirable forage plants such as sideoats grama, little bluestem, New Mexico feathergrass, big bluestem and pinyon ricegrass to decrease. Species most likely to increase are blue grama, oneseed juniper, ring muhly, oak brush and cholla cactus. As the ecological condition deteriorates, it is accompanied by a sharp increase in juniper, which may give the appearance of dominating the site. Small patches of oak brush will also increase. As the potential plant community deteriorates, the tree canopy increases and the understory grass production decreases. Fires may have naturally kept the woody species decimated, leaving grass between. The increased numbers of juniper and pinyon per acre may be attributed in part to control of fire, to reduced competition from grasses as a result of overgrazing, and in part to increases scattering of seeds by grazing animals. Brush management is needed once the tree canopy reaches 25 percent plus in order to sustain the understory production of grasses. Mechanical control is not feasible due to the shallow soils. A system of deferred grazing, which varies the time of grazing and rest in a pasture during successive years, is needed to maintain or improve the plant community. A late spring rest during April, May and June is beneficial to New Mexico feathergrass, western wheatgrass, needleandthread and pinyon ricegrass. Rest during the summer is beneficial to all-warm season grasses and forbs.

Other Information:**Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month**

Similarity Index	Ac/AUM
100 - 76	3.2 – 4.2
75 – 51	4.0 – 6.0
50 – 26	5.9 – 16.0
25 – 0	16.0+

Plant Part	Code	Species Preference	Code
Stems	S	None Selected	NS
Leaves	L	Preferred	P
Flowers	F	Desirable	D
Fruits/Seeds	F/S	Undesirable	U
Entire Plant	EP	Not Consumed	NC
Underground Parts	UP	Emergency	E
		Toxic	T

Plant Preference by Animal Kind:

Animal Kind: Livestock

Animal Type: Cattle

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Little Bluestem	Schizachyrium scoparium	EP	D	D	D	D	D	P	P	P	D	D	D	D
Sideoats Grama	Bouteloua curtipendula	EP	P	P	P	P	P	P	P	P	P	P	P	P
Needleandthread	Hesperostipa comata	EP	D	D	P	P	P	D	D	D	D	D	D	D
New Mexico Feathergrass	Hesperostipa neomexicana	EP	D	D	P	P	P	D	D	D	D	D	D	D
Bottlebrush Squirreltail	Elymus elymoides	EP	U	U	D	D	D	U	U	U	D	D	D	U
Western Wheatgrass	Pascopyrum smithii	EP	D	D	P	P	P	D	D	D	D	D	D	D
Big Bluestem	Andropogon gerardii	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Pinyon Ricegrass	Piptochaetium fimbriatum	EP	P	P	P	P	P	P	P	P	P	P	P	P
Green Needlegrass	Nassella viridula	EP	D	D	D	D	D	D	D	D	D	D	D	D
Winterfat	Krascheninnikovia lanata	L/S	D	D	P	P	P	P	P	P	D	D	D	D
Indiangrass	Sorghastrum nutans	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Plains Muhly	Muhlenbergia cuspidata	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S

Animal Kind: Livestock

Animal Type: Sheep

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Green Needlegrass	Nassella viridula	EP	D	D	D	D	D	D	D	D	D	D	D	D
Little Bluestem	Schizachyrium scoparium	EP	D	D	D	D	D	P	P	P	D	D	D	D
Sideoats Grama	Bouteloua curtipendula	EP	D	D	D	D	D	D	D	D	D	D	D	D
Western Wheatgrass	Pascopyrum smithii	EP	U	U	D	D	D	D	D	D	D	D	D	U
Scarlet Globemallow	Sphaeralcea coccinea	EP	U	U	P	P	P	D	D	D	D	D	D	U
Winterfat	Krascheninnikovia lanata	L/S	P	P	P	P	P	P	P	P	P	P	P	P
Pinyon Ricegrass	Piptochaetium fimbriatum	EP	P	P	P	P	P	D	D	D	D	D	D	P
Hairy Mountainmahogany	Cercocarpus montanus	L/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S

Animal Kind: Wildlife

Animal Type: Deer

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Western Wheatgrass	Pascopyrum smithii	EP	U	U	P	P	P	U	U	U	U	U	U	U
Needleandthread	Hesperostipa comata	EP	U	U	D	D	D	U	U	U	D	D	D	U
New Mexico Feathergrass	Hesperostipa neomexicana	EP	U	U	D	D	D	U	U	U	D	D	D	U
Bigelow Sagebrush	Artemisia bigelovii	L/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Scarlet Globemallow	Sphaeralcea coccinea	EP	U	U	P	P	P	D	D	D	D	D	D	U
Skunkbush Sumac	Rhus trilobata	L/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Oak	Quercus spp.	L/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Pinyon Ricegrass	Piptochaetium fimbriatum	EP	U	U	P	P	P	U	U	U	D	D	D	U
Green Needlegrass	Nassella viridula	EP	U	U	D	D	D	U	U	U	U	U	U	U
Hairy Mountainmahogany	Cercocarpus montanus	L/S	P	P	P	P	P	P	P	P	P	P	P	P

SUPPORTING INFORMATION

Associated sites:

Site Name	Site ID	Site Narrative

Similar sites:

Site Name	Site ID	Site Narrative

State Correlation:

This site has been correlated with the following sites: _____

Inventory Data References:

Data Source	# of Records	Sample Period	State	County

Type Locality:

State: New Mexico

County: Guadalupe, San Miguel, Santa Fe, Torrance

Latitude: _____

Longitude: _____

Township: _____

Range: _____

Section: _____

Is the type locality sensitive? Yes ☐ No ☐

General Legal Description: _____

Relationship to Other Established Classifications:

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Other References:

Data collection for this site was done in conjunction with the progressive soil surveys within the Pecos-Canadian Plains and Valleys 70 Major Land Resource Area of New Mexico. This site has been mapped and correlated with soils in the following soil surveys: Colfax, Mora, San Miguel, Union.

Characteristic Soils Are:

Bernal	Sombordoro
Tuloso	

Other Soils included are:

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Site Description Approval:

<u>Author</u>	<u>Date</u>	<u>Approval</u>	<u>Date</u>
Don Sylvester	04/25/80	Durwood E. Bell	06/29/80

Site Description Revision:

<u>Author</u>	<u>Date</u>	<u>Approval</u>	<u>Date</u>
Elizabeth Wright	06/12/01	George Chavez	12/17/02